UNITED STATES PATENT AND TRADEMARK OFFICE

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10/619,644	07/14/2003	David Fritz	ZIL-553	5992

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IMPERIUM PATENT WORKS
P.O. BOX 587
SUNOL, CA 94586

EXAMINER
LOHN, JOSHUA A

ART UNIT	PAPER NUMBER
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DATE MAILED: 11/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>06 September 2006</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-30</u> is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-30</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>14 July 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All   b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
     Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments, see page 10, filed 9/6/06, with respect to the objection of claim 1 have been fully considered and are persuasive. The objection of claim 1 has been withdrawn.

Applicant's arguments filed 9/6/06, with respect to the prior art rejections, have been fully considered but they are not persuasive.

With respect to applicant's arguments, relating to claim 1, that Tegethoff does not disclose a script interpreter executing on a debugging device, the examiner respectfully disagrees. The ability of the system probe of Tegethoff to execute code directly and interactively shows that it is interpreting the test script to provide for debug execution functionality, see column 9, lines 24-27. Applicant further argues that the system probe only executes microprogram based functional test code, and does not receive the test script files, however the examiner feels that since the microprogram code is generated as a part of the test script, in the execution of the script, the receipt of this code is functionally equivalent to receiving the test script files. Applicant also argues that Tegethoff does not mention "interpreting" or an "interpreter". However, examiner feels that the execution of the test script file commands means that some form of interpretation must occur. Interpretation would have been required as some part of the script execution disclosed by Tegethoff, col. 9, lines 19-27.

With respect to applicant's arguments, relating to claim 8, that Tegethoff does not disclose a lack of operating system on the computer system probe, the examiner respectfully disagrees. Tegethoff discloses, in column 10, lines 5-15, that the microprogram of the probe is ideally used to avoid the need to boot the operating system and its related diagnostics on the

computer system. The fact that, ideally, the code execution of the computer system probe is to

avoid the loading of the operating system and the operating system is on the computer system,

and not the probe, shows that Tegethoff teaches of a debugging device, in the form of the system

probe, that does not contain an operating system.

With respect to applicant's arguments, relating to claims 2-3 and 5-9, the examiner

respectfully disagrees that claim 1 is allowable, and therefor, these claims are also not allowable

merely for being dependent on claim 1.

With respect to applicant's arguments, relating to claim 11, that Tegethoff does not

disclose receiving a script onto a hardware debugging device and interpreting the script, the

examiner respectfully disagrees. The examiner feels that these functions are sufficiently carried

out by the system probe of Tegethoff, as detailed in the arguments relating to claim 1 above.

With respect to applicant's arguments, relating to claim 15, that Tegethoff does not

mention "interpreting", the examiner respectfully disagrees. The actions of the probe of

Tegethoff indicate interpreting, regardless of terminology, the details of this argument are

presented in the discussion of claim 1 above.

With respect to applicant's arguments, relating to claims 12-13, 15-16, and 18-19, the

examiner respectfully disagrees that claim 11 is allowable, and therefor, these claims are also not

allowable merely for being dependent upon claim 11.

With respect to applicant's arguments, relating to claim 20, that Tegethoff does not

disclose a debugging device with means for receiving a script and interpreting the script, the

examiner respectfully disagrees. The examiner feels that these functions are sufficiently carried

out by the system probe of Tegethoff, as detailed in the arguments relating to claim 1 above.

With respect to applicant's arguments, relating to claims 21-24, the examiner respectfully disagrees that claim 20 is allowable, and therefor, these claims are also not allowable merely for being dependent upon claim 20.

With respect to applicant's arguments, relating to claim 4, that Tegethoff and Zen do not together disclose a script interpreter executing on a debugging device, the examiner respectfully disagrees. The examiner feels that Tegethoff discloses such a script interpreter, as is detailed in the arguments relating to claim 1 above.

With respect to applicant's arguments, relating to claim 10, 14, and 17, that Tegethoff and Cromer fail to disclose communicating a script to the debugging device and interpreting such a script, the examiner respectfully disagrees. The examiner feels that Tegethoff discloses such script transfer and interpretation, as is detailed in the arguments relating to claim 1 above.

In view of the above arguments, the rejections of claims 1-24 remain, and are reiterated below.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless —

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

+15,26,28,29

Claims 1-3, 5-9, 11-13, 15, 16, and 18-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Tegethoff, United States Patent number 5,937,154, published August 10, 1999.

As per claim 1, Tegethoff discloses a debugging device comprising: a first

communication interface that couples the debugging device to a host computer (Tegethoff, col. 8,

lines 1-12, where the debugging device is the computing system probe and the first interface is

the host connection); a second communication interface that couples the debugging device to a

target device (Tegethoff, col. 8, lines 42-45, where the test device is the computing device and

the second interface is the debug port); and a script interpreter executing on the debugging

device (Tegethoff, col. 9, lines 19-33), the script interpreter receiving a script from the host

computer via the first communication interface, the script defining a loop (Tegethoff, col. 11,

lines 1-25) that involves performing a plurality of reads from the target device (Tegethoff, col.

11, line 42 through col. 12, line 3), the script interpreter interpreting the script and causing the

debugging device to communicate with the target device over the second communication

interface such that the plurality of reads is carried out (Tegethoff, col. 9, lines 23-30).

As per claim 2, Tegethoff further discloses the debugging device of claim 1, wherein the

script includes a loop statement, and wherein the loop statement includes an expression and at

least one statement (Tegethoff, col. 11, lines 1-23).

As per claim 3, Tegethoff further discloses the debugging device of claim 2, wherein said

at least one statement is a read statement (Tegethoff, col. 11, line 42 through 12, line 17).

As per claim 5, Tegethoff further discloses the debugging device of claim 1, wherein the

performing of the plurality of reads results in an amount of data being retrieved from the target

(Tegethoff, col. 11, lines 24-25), and wherein the script includes a statement that causes the

amount of data to be sent from the debugging device to the host computer (Tegethoff, col. 13, lines 45-51).

As per claim 6, Tegethoff further discloses the debugging device of claim 2, wherein the script includes a second statement in addition to said at least one statement (Tegethoff, col. 11, lines 1-23).

As per claim 7, Tegethoff further discloses the debugging device of claim 1, wherein the script is not compiled on the host computer, and wherein the script is not compiled on the debugging device (Tegethoff, col. 9, line 19-30, where the script is directly loaded into the memory, without any need for compilation).

As per claim 8, Tegethoff further discloses the debugging device of claim 1, wherein there is no operating system stored on the debugging device (Tegethoff, col. 8, lines 3-7, where the probe operates without any apparent use of an operating system).

As per claim 9, Tegethoff further discloses the debugging device of claim 1, wherein the target device comprises an on-chip debugging circuit (Tegethoff, col. 4, lines 12-15, where the debug port is an on-chip debugging circuit), and wherein the second communication interface couples the debugging devices to the on-chip debugging circuit of the target device (Tegethoff, col. 8, lines 2-3).

As per claim 11, Tegethoff discloses a method, comprising: receiving a script, the script defining a debugging action (Tegethoff, col. 9, lines 19-60), the debugging action requiring a plurality of sub actions be performed (Tegethoff, col. 11, line 1 through col. 12, line 29); interpreting the script (Tegethoff, col. 9, lines 12-18, where the interpreting the script is the

loading of the script into the probe memory emulator); generating a plurality of microcommands

from the script; and sending the plurality of microcommands to a target device (Tegethoff, col. 9,

lines 16-18), the microcommands causing the target device to perform the plurality of sub-

actions (Tegethoff, col. 11, line 36 through col. 12, line 2).

As per claim 12, Tegethoff further discloses the method of claim 11, wherein the

debugging action includes a read of a block of memory locations on the target device (Tegethoff,

col. 11, line 10), and wherein one of the plurality of sub actions is a read on one of the memory

locations (Tegethoff, co. 11, line 35 through col. 12, line 2).

As per claim 13, Tegethoff further discloses the method of claim 12, wherein the target

device includes a processor (Tegethoff, col. 1, lines 25-26, where the target computing device is

a processor), the processor having on-chip debugging hardware (Tegethoff, col. 4, lines 57-60),

and wherein the microcommands are executed by the on-chip hardware (Tegethoff, col. 4, lines

60-64).

As per claim 15, Tegethoff further discloses the method of claim 12, wherein the script is

sent from a host computer to a hardware debugging device, wherein said interpreting of the script

occurs on the hardware debugging device (Tegethoff, col. 9, lines 19-30), and wherein the script

includes a statement that causes data to be sent form the hardware debugging device to the host

computer (Tegethoff, col. 9, lines 30-33).

As per claim 16, Tegethoff further discloses the method of claim 11, wherein the script

includes a loop statement (Tegethoff, col. 11, line 7), an arithmetic operator (Tegethoff, col. 11,

line 51, where "=" is an arithmetic operator), and a variable (Tegethoff, col. 11, lines 14-15,

where the difference result is a variable).

As per claim 18, Tegethoff further discloses the method of claim 11, wherein the script

includes a break statement (Tegethoff, col. 11, line 23, where the "done" is a break statement).

As per claim 19, Tegethoff further discloses the method of claim 11, wherein the script

includes a Boolean operator (Tegethoff, col. 11, line 15, where the "if" comparison involves a

Boolean operator).

As per claim 20, Tegethoff discloses a debugging device comprising: a first

communication interface that couples the debugging device to a host computer (Tegethoff, col. 8,

lines 1-12, where the debugging device is the computing system probe and the first interface is

the host connection); a second communication interface that couples the debugging device to a

target device (Tegethoff, col. 8, lines 42-45, where the test device is the computing device and

the second interface is the debug port);   and means for receiving a script from the host computer

(Tegethoff, col. 8, line 50 through col. 9, line 18), the script defining a debugging action to be

taken with respect to the target device, the debugging action requiring a plurality of sub actions

to occur (Tegethoff, col. 11, line 1 through col. 12, line 2), the means also being for interpreting

the script and generating therefrom a plurality of microcommands that are sent to the target

device (Tegethoff, col. 9, lines 12-18).

As per claim 21, Tegethoff further discloses the debugging device of claim 20, wherein

the microcommands are performed by the target device such that the sub-actions occur

(Tegethoff, col. 11, line 1 through col. 12, line 2, where the sub-actions are the memory reads).

As per claim 22, Tegethoff further discloses the debugging device of claim 20, wherein

the script is a non-complied string of text characters received onto the means form the host

computer (Tegethoff, col. 11, lines 30-35, where the test is loaded, the test consisting of a string

of text characters, col. 11, lines 5-23).

As per claim 23, Tegethoff further discloses the debugging device of claim 20, wherein

one of the sub-actions involves setting a breakpoint (Tegethoff, col. 11, line 23, where the

"done" command is a breakpoint between tests, col. 14, lines 34-38).

As per claim 24, Tegethoff further discloses the debugging device of claim 20, wherein

the script includes a loop statement (Tegethoff, col. 11, line 7), an arithmetic operator

(Tegethoff, col. 11, line 51, where "=" is an arithmetic operator), and a designation of a register

internal to a processor of the target system (Tegethoff, col. 4, lines 15-17, where the system

debug controls internal registers).

As per claim 25, Tegethoff discloses a debugging device comprising: a first

communication interface that couples the debugging device to a host computer (Tegethoff, col. 8,

lines 1-12); a second communication interface that couples the debugging device to a target

device (Tegethoff, col. 8, lines 42-45); and a script interpreter executing of the debugging device

(Tegethoff, col. 9, lines 19-33), the script interpreter receiving a script from the host computer

via the first communication interface (Tegethoff, col. 11, lines 1-25), the script interpreter

interpreting the script and causing the debugging device to communicate with the target device over the second communication interface such that a debugging action is preformed (Tegethoff, col. 9, lines 23-30).

As per claim 26, Tegethoff further discloses the debugging device of claim 25, wherein there is no operating system stored on the debugging device (Tegethoff, col. 8, lines 3-7, where the probe operates without an operating system).

As per claim 28, Tegethoff further discloses the debugging device of claim 25, wherein the script includes a loop statement, and wherein the loop statement includes an expression and at least one statement (Tegethoff, col. 11, lines 1-23)

As per claim 29, Tegethoff further discloses the debugging device of claim 28, wherein said at least one statement is a read statement (Tegethoff, col. 11, line 42 through col. 12, line 17).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 4 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Tegethoff in view of "The Zen of Diagnostics", Published in Embedded Systems Programming,

June 1990.

As per claim 4, Tegethoff discloses the debugging device of claim 3, but fails to

explicitly discloses that the expression in the statement includes a number specifying a number

of times to perform a read statement.

"The Zen of Diagnostics" discloses a system that specifies the number of times to

perform a read statement ("The Zen of Diagnostics", page7, where the length expression

indicates the number of times to perform a read statement when checking the memory).

It would have been obvious to one skilled in the art at the time of the invention to use the

read counter of "The Zen of Diagnostics" in the invention of Tegethoff.

This would have been obvious because the expression of a number of read statements to

perform is included in a ram test code program ("The Zen of Diagnostics", figure 1). Further,

"The Zen of Diagnostics" discloses a need to examine a system analytically in an effort to look

for all possible failure modes ("The Zen of Diagnostics, page 6), as is presented in part by the

RAM test code of figure 1. It would have obviously benefited Tegethoff to use this test to

further complete the desire of complete fault coverage (Tegethoff, col. 4, lines 47-56).

As per claim 30, Tegethoff discloses the debugging device of claim 29, but fails to

explicitly discloses that the expression in the statement includes a number specifying a number

of times to perform a read statement.

"The Zen of Diagnostics" discloses a system that specifies the number of times to

perform a read statement ("The Zen of Diagnostics", page7, where the length expression

indicates the number of times to perform a read statement when checking the memory).

It would have been obvious to one skilled in the art at the time of the invention to use the

read counter of "The Zen of Diagnostics" in the invention of Tegethoff.

This would have been obvious because the expression of a number of read statements to

perform is included in a ram test code program ("The Zen of Diagnostics", figure 1). Further,

"The Zen of Diagnostics" discloses a need to examine a system analytically in an effort to look

for all possible failure modes ("The Zen of Diagnostics, page 6), as is presented in part by the

RAM test code of figure 1. It would have obviously benefited Tegethoff to use this test to

further complete the desire of complete fault coverage (Tegethoff, col. 4, lines 47-56).

Claims 10, 14, 17, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Tegethoff in view of Cromer et al., United States Patent number 6,263,373, published July 17,

2001.

As per claim 10, Tegethoff discloses the debugging device, which receives test scripts

(Tegethoff, col. 9, lines 29-30), of claim 1, but fails to disclose that the test is communicated as a

payload of a network packet.

Cromer discloses sending a test program over a network packet (Cromer, col. 3, lines 31-

38).

It would have been obvious to one skilled in the art at the time of the invention to

implement the network method of Cromer in the invention of Tegethoff.

This would have been obvious because Tegethoff discloses the ability to run test

programs across a local network, and a desire to support other communication means (Tegethoff,

col. 8, lines 9-12). Cromer provides such an additional communication means, which provides

an additional benefit of reduced cost by providing debugging across a wider network (Cromer,

col. 2, lines 5-18).

As per claim 14, Tegethoff discloses the method of claim 12,. Tegethoff further discloses

the use of a system debug port (Tegethoff, col. 4, lines 57-60). However Tegethoff fails to

disclose that the port is a JTAG interface.

Cromer discloses the use of a JTAG interface (Cromer, col. 1, lines 60-62).

It would have been obvious to one skilled in the art at the time of the invention to include

the JTAG interface of Cromer in the invention of Tegethoff.

This would have been obvious because Tegethoff discloses a desire to provide a system that is effective for testing a variety of systems (Tegethoff, col. 4, lines 10-56). This would obviously benefit by having the use of a standardized port that conforms to the JTAG test architecture (Cromer, col. 1, lines 60-62), since a standard interface would all easier use between a variety of different devices and boards (Tegethoff, col. 4, lines 37-40).

As per claim 17, Tegethoff discloses the method of claim 11, which includes a script executing the test (Tegethoff, col. 9, lines 19-30). However Tegethoff fails to disclose the use of a sleep statement.

Cromer discloses a sleep statement for the testing system (Cromer, col. 7, line 61 through col. 8, line 3, where the magic packet detection means that any packet destined for an operating system is ignored, resulting in a sleeping state for the debug system).

It would have been obvious to one skilled in the art at the time of the invention to include the sleep statement of Cromer in the invention of Tegethoff.

This would have been obvious because the ability of Cromer to provide communications to the system that are both debugging and normal operations (Cromer, col. 7, line 61 through col. 8, line 20) would allow for the improvement to the debugging of Tegethoff by allowing the system to be used in normal operation and outside of a manufacturing only environment (Tegethoff, col. 4, lines 37-40).

As per claim 27, Tegethoff discloses the device of claim 25, which includes a script

executing the test (Tegethoff, col. 9, lines 19-30). However Tegethoff fails to disclose the use of

a sleep statement.

Cromer discloses a sleep statement for the testing system (Cromer, col. 7, line 61 through

col. 8, line 3, where the magic packet detection means that any packet destined for an operating

system is ignored, resulting in a sleeping state for the debug system).

It would have been obvious to one skilled in the art at the time of the invention to include

the sleep statement of Cromer in the invention of Tegethoff.

This would have been obvious because the ability of Cromer to provide communications

to the system that are both debugging and normal operations (Cromer, col. 7, line 61 through col.

8, line 20) would allow for the improvement to the debugging of Tegethoff by allowing the

system to be used in normal operation and outside of a manufacturing only environment

(Tegethoff, col. 4, lines 37-40).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Joshua A. Lohn whose telephone number is (571) 272-3661. The

examiner can normally be reached on M-F 8-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Scott Baderman can be reached on (571) 272-3644. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JAL

SCOTT BADERMAN
SUPERVISORY PATENT EXAMINER